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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09,817,559	03 26 2001	C. Theodore Peachee	3174-000003	7773

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EXAMINER

GONZALEZ, JULIO C

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/817,559

Applicant(s)

PEACHEE ET AL

Examiner

Julio C. Gonzalez

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are not clear enough as to what is meant by using a "precise winding method". Just about all of the electric machines use a precise winding method. What makes the winding method of the present invention different from the other electrical machines? Also, what are the parameters that relate to the inductance and resistance of the stator segments? Are the parameters the voltage? Current? Back Emf?

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-27 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-21 of copending Application No. 09/803876. Although the conflicting claims are not identical, they are not patentably distinct from each other because: Both inventions are related to a switch reluctance machine comprising a stator, rotor, a drive circuit, stack of stator plates, insulation layer between the winding wire and the stator segments, end caps and end caps retainers and both inventions use sensorless techniques for determining the position of the rotor.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 6-8, 11, 12, 16-18, 21-23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang in view of Takeuchi et al and Oki (JP 411289701A) and Ehsani.

Tang discloses a switched reluctance machine having with a stator core, winding and rotor poles (see figure 1). Also, the reluctance machine has a sensorless system for controlling the machine (see abstract) and that the winding wire may be energize based on the rotor position (column 1, lines 15-24 & column 5, lines 28-32). Moreover, the monitoring may be based on the slope of a waveform (column 15, lines 1-5). Although it is well known in the art for electrical machines such as motors to have a slot fill winding of more than 65% since it is not desirable to have empty spaces, Tang discloses inherently that the winding may have a slot fill greater than 65% (see figure 1).

However, Tang does not disclose that the stator can be made of a plurality of stator segments.

On the other hand, Takeuchi et al discloses for the purpose of purpose of increasing the efficiency of a motor, a machine having a plurality of circumferentially-spaced stator segments 11 with winding 16 and insulation 15 between the stator core plates and the winding 16 (see figure 2). Moreover, the stator segments 11 have a tooth section that extends radially and projections extending radially (see figure 1).

Moreover, Oki teaches for more emphasis for the purpose of making a motor with a superior electromagnetic performance that a reluctance motor may be made by having a segmented stator (see figure 4).

Although it is known in the art that switch reluctance machines operate by controlling the back emf using the induced magnetism by controlling the inductance and resistance of the windings, neither Tang nor Takeuchi et al nor Oki disclose explicitly that by using the inductance and resistance of the stator, a control operation may be performed.

On the other hand, Ehsani discloses for the purpose using a cost effective technique to detect the rotor position of a switch reluctance motor that the difference between varying voltage and current passing through a resistance and inductance may be use to determine a rotor position (see abstract, figures 1, 3-6, 7 & column 5, lines 25-30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design a reluctance machine as disclosed by Tang and to modify the invention by forming the stator from a plurality of stator segments for the purpose of increasing the efficiency of a motor as disclosed by Takeuchi et al and to emphasized a segmented stator for a reluctance motor for the purpose of making a motor with a superior electromagnetic performance as disclosed by Oki and to use the inductance and resistance of a stator for the purpose using a cost effective technique to detect the rotor position of a switch reluctance motor as disclosed by Ehsani.

5. Claims 3, 13 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang, Takeuchi et al and Oki and Ehsani as applied to claims 1, 11 and 21 above, and further in view of Moriarty.

The combined electrical machine discloses all of the elements above. However, the combined electrical machine does not disclose that a pulse generator in combination with the rotor position.

On the other hand, Moriarty discloses for the purpose of reducing the cost of manufacturing of a device that detects the rotor position that a pulse indicative of a

rotor position can be supplied to a control circuit, thus the correct energization can be achieved (see paragraph 0007).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined electrical machine as disclosed above and to modify the invention by using a generated pulse discloses for the purpose of reducing the cost of manufacturing of a device that detects the rotor position as disclosed by Moriarty.

6. Claims 4, 5, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang, Takeuchi et al and Oki and Ehsani as applied to claims 1 and 11 above, and further in view of Mann et al.

The combined electrical machine discloses all of the elements above. However, the combined electrical machine does not disclose, explicitly that data from a table and the rotor position can be monitored by the slope of waveform.

On the other hand, Mann et al discloses for the purpose of reducing damage done to motors and reducing the cost of manufacture of motor that the motor uses a sensorless system wherein the windings are energized based on a data (see claim 4) and using the slope of a signal. the position of the rotor can be determined (see claim 6 (i), (j)).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined electrical machine as disclosed above and to modify the invention by using the slope of a waveform for determining the rotor position for the purpose of reducing damage done to motors and reducing the cost of manufacture of motor as disclosed by Mann et al.

7. Claims 9, 10, 19, 20, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang, Oki and Takeuchi et al and Ehsani as applied to claims 1 and 11 above, and further in view of Akita et al.

The combined electrical machine discloses all of the elements above. However, the combined electrical machine does not disclose first and second end caps and central portions.

On the other hand, Akita et al discloses for the purpose of improving the magnetic performance and increasing the mechanical precision for an iron core assembly that a first and second end cap are connected at axial ends of stator segments (see figure 36) and that the stator segments have central portions so as to hold the stator plates together (see figures 49(b), 50).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined electrical machine as disclosed

above and to modify the invention by using end caps for the purpose of improving the magnetic performance and increasing the mechanical precision for an iron core assembly as disclosed by Akita et al.

Response to Arguments

8. Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

9. Applicant's arguments filed 04/17/03 have been fully considered but they are not persuasive.

Respectfully, the claims disclosed are not specific enough to differentiate between the present invention and the prior art. For example, the winding method disclosed in the base claims is not specific enough and using a 65% or greater slot fill may be described in many electrical machines since it is not desirable to leave empty spaces in a motor. Also, the description of the sensorless drive circuit is not specific enough to differentiate from the prior art since switch reluctance machines use the back emf in combination with the inductance and the resistance of the stator to derive a rotor position. It is recommended that the sensorless drive circuit be described so as to differentiate between the prior art and the present invention.

Tang and Takeuchi et al disclose a stator for an electric machine. Both references are well in the field of electric machines. Also, Takeuchi et al discloses a specific purpose for making a segmented stator, which is for obtaining "high-density windings and space-saving performance to realize compact and highly efficient motors". Such improvement (making a segmented stator) is well known in the field of motors, as taught by Takeuchi et al.

Also, Oki shows clearly using a reluctance motor with a segmented stator (see figure 10).

Also, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to come with those optimum ranges (65% or higher) that the applicant discloses, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Also, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a 65% slot fill, since it has been held that discovering the optimum value of result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

10. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both of the references deal with electrical machines, especially motors and improvements of such machines.

Conclusion

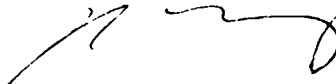
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio C. Gonzalez whose telephone number is (703) 305-1563. The examiner can normally be reached on M-F (8AM-5PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, consisting of a series of loops and a final downward stroke.

Jcg

May 7, 2003